EPA Region 7 TMDL Review

TMDL ID	367	*Water Body ID*	IA 05-NSH-00220-L
Water Body Name	Pierce Creek Pond		
Pollutant	Non-Algal Turbidity		
Tributary	none		
State	Iowa HUC	10240003[illegible]	
Basin	Nishnabotna River Basin		
Submittal Date	2/2/2005		
Approved	Yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

EPA received Iowa's formal submission of this TMDL on February 2, 2005 with a cover letter dated February 1, 2005.

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

The water body is impaired for A1 primary contact recreation and B(LW) aquatic life use due to non-algal turbidity. Iowa does not have a numeric WQS for non-algal turbidity. The state's narrative standard states, " the physical and chemical characteristics of the water body should not be altered by excessive sediment to cause reductions in aquatic habitat.... " The load capacity is 370 tons/year of sediment, the existing load is 680. This requires a reduction in sediment of 310 tons/year. The reduction in sediment will increase transparency to the targeted Secchi depth which is set at 0.7 meters.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The numeric targets for this TMDL; First, the sediment delivery endpoint will be 330 tons/year. This endpoint will reduce the average rate of sediment deposition in the lake. Second, through the reduction of sediment, the average water transparency level measured by Secchi depth will be greater than 0.7 meters. This target is equivalent to a Trophic State Index (TSI) of <65. Finally, the attainment of aquatic life uses as measured by fishery and biological assessments. The aquatic life target for this TMDL will be achieved when the fishery of Pierce Creek Pond has fully supporting aquatic life uses as determined by assessments conducted by the IDNR fisheries Bureau.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

The submittal links non-algal turbidity to sediment load and an increase in Secchi depth (transparency). If the sediment load is reduced by 310 tons/year, the Secchi depth should increase from 0.4 meters to 0.7 meters.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

The non-algal turbidity is caused by the addition of sediment from the watershed and resuspension of sediment from the lake bottom. These sediments also contain attached phosphorus which contribute to the high phosphorus levels in the water and resulting algal production. Land use is primarily row crop. All significant sources have been considered.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

Allocations were made based on Secchi depth. The existing sediment load is 680 tons per year. To increase Secchi depth (transparency) to the target 0.7 meters, the load must be decreased by 310 tons per year.

WLA Comment

There are no point sources for sediment in the watershed for Pierce Creek Pond so the WLAs for the TMDL pollutant is set to zero.

LA Comment

The sediment load allocation is set at 330 tons per year to meet the Secchi depth (transparency) of 0.7meters.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The MOS is explicit. The MOS is set at 40 tons per year or 10 % of the calculated allowable sediment load.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

This TMDL was developed based on transparency that will result in attainment of targets on an average annual basis.

Public Participation

Submital describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

Public meetings were held June 23, 2004 with the Page County Conservation Board. The draft TMDL was reviewed at public meeting January 20, 2005. Comments received were reviewed and, where appropriate incorporated into the TMDL.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

Follow-up monitoring will continue to meet, at a minimum, the minimum data requirements established by Iowa's 305(b) guidelines. An assessment will be completed by 2010 containing 3 lake samples per year for three years or 10 lake samples over a two year period.

Sources of gully, streambank and streambed erosion will be examined in cooperation with the Division of Soil Conservation and NRCS.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.

Reasonable assurances are not required in the TMDL because there are no point sources contributing to the impairment in the watershed.